Texas Department of Transportation

March 2005

Truck Traffic Diversion using Variable Toll Rates – Austin, Texas

FHWA Value Pricing Program
Detailed Proposal

Submitted by: **Texas Department of Transportation – Austin District**
March 2005

This value pricing proposal for a study of variable tolling for trucks on State Highway 130 has been developed in accordance with the application guidelines for the Value Pricing Pilot Program authorized by Section 1216 (a) of the Transportation Equity Act for the 21st Century (TEA-21) in the Federal Register Document for May 7, 2001, Volume 66, Number 88, Page 23077-23081. This plan outlines pre-project activities necessary prior to project implementation. It is anticipated that this project could be implemented after completion of this study and in conjunction with the opening of SH 130 in 2007.

1. Congestion Problem To Be Addressed

Interstate 35 is one of the most traveled corridors in the nation. Truck traffic has grown six percent each year in Texas, primarily as a result of the North American Free Trade Agreement (NAFTA). Additionally, congestion levels and accidents are higher on I-35 between San Antonio and Austin than any other stretch of I-35, all the way from Laredo, Texas to Duluth, Minnesota. In 1998, there were 154 fatalities on this 110 mile stretch of I-35. Twenty-five percent of all fatalities in Travis County (Austin) involved trucks. Additionally, truck traffic in this corridor has increased 15 percent each year since the passage of NAFTA and is expected to continue to increase rapidly, further worsening congestion. Currently truck traffic constitutes five to ten percent of traffic volumes, significantly contributing to peak period congestion and a level of service F on I-35 during the peak periods.

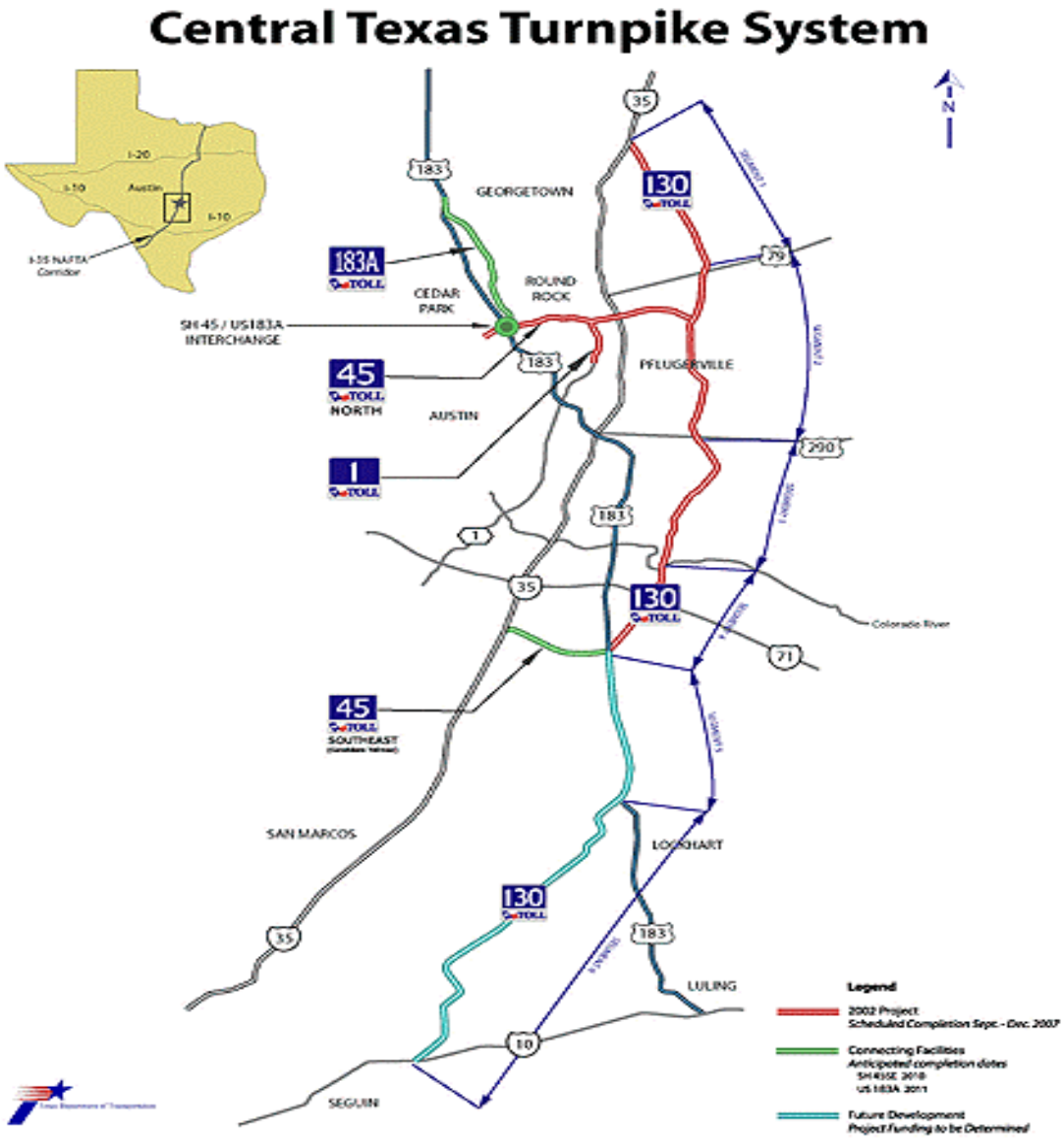
This project will examine the use of value pricing as a potential means for encouraging the diversion of truck traffic from I-35 to SH 130 - a newly constructed, parallel toll facility. Because of increasing congestion on I-35, commercial trucks may be more willing to shift to the alternate facility(s) even if the facility charges a toll. The project will examine methods to encourage additional route shifting and time-of-travel shifting using value pricing toll techniques.

2. Description Of Proposed Project And Its Goals

In October 2003 the Texas Department of Transportation (TxDOT) began construction on SH 130 - a toll road by-pass to I-35 in the Austin metropolitan

area (see Figure 1). This project, which is part of a larger system of turnpikes under construction in the Austin area, is intended to improve mobility and relieve congestion. In 2003, TxDOT initiated the development of a parallel Trans-Texas Corridor-35 (TTC-35), an intermodal facility (road, rail and utilities) that would stretch from the international border with Mexico to Oklahoma. This project is also expected to lead to the diversion of trucks and automobiles from the existing I-35. All or parts of SH 130 may become elements of TTC-35.

Even with this new system of turnpikes, it is anticipated that congestion levels on I-35 will continue to increase, due to continued population, employment and trade growth. It is estimated that for every one percent of population growth in the corridor, traffic on I-35 increases three to four percent. Every county in the corridor has experienced double digit population increases in the last decade. The population of the corridor is expected double by 2020 reaching nearly five million people. Currently 80 percent of Mexico's trade with the United States and Canada passes through Texas, 75 percent by truck. As a result, congestion on I-



35, especially during the peak periods, will only increase.

When completed in 2007, Phase 1 of State Highway (SH) 130 will stretch from just north of Georgetown, Texas to US 183 near the Austin-Bergstrom International Airport (see Figure 1). This 49-mile tolled highway will be a four lane divided facility with major interchanges at I-35, US 79, SH 45 North, US 290 and SH 71. Subsequent phases of the project will connect the road to I-10 north of San Antonio. The anticipated toll rate is a flat $0.13 per mile for passenger cars and $0.48 per mile for trucks.

This value pricing project will estimate truck diversion from I-35 to SH 130 as a result of the use of variable tolls on SH 130 for truck traffic. Initial values will be obtained from the traffic and revenue study already conducted for SH 130 for flat rate tolls. Then, surveys will measure truckers' willingness to pay *value priced tolls* to determine price elasticity of demand for the new toll road. Using these data, diversion rates for trucks from I-35 to SH 130 will be developed for various toll scenarios.

Additionally, the potential for credits to alter the time of day for truck travel will also be investigated. In this scenario, truck traffic may receive credits for traveling on SH 130 during peak periods, which can be used in exchange for reduced toll rates on SH 130 during the off peak periods. This objective serves two purposes; it will encourage truck traffic to divert to SH 130 during the peak period relieving some of the congestion on I-35 that disrupts flow and throughput. Secondly, it may have the effect of shifting truck travel to the off-peak through the use of credits.

Finally, TxDOT is exploring the possibility of offering concessions to vendors at certain locations on SH 130. It is conceivable that the concession agreements can be structured to offer a guaranteed maximize price on diesel fuel to truckers. This offers another incentive for the truckers to consider SH 130 as an alternate route. This survey would also review the viability of providing either subsidized or non-subsidized credits from diesel concessionaires as a potential incentive for truckers to use the facility

3. **Social and Economic Effects of the Pricing Program**

The social and economic benefits of this program will be in the amount of reduced congestion on I-35 and the safety effects of increased separation of truck traffic from congested passenger traffic on I-35. Traffic flow and throughput should improve along with air quality. Commuters in the corridor will benefit from reduced traffic congestion traveling into and through downtown Austin. Truck travel will be facilitated by providing an incentive to switch to another alternate route (SH 130) or time of day thereby reducing delays that cost time, fuel and improving economic productivity.

The SH 130 project is currently under construction. The corridor has previously undergone a NEPA analysis to address specific social and economic impacts of the project.

4. **Role of Alternative Modes in the Project**

This project is not expected to produce a significant mode shift. However, by reducing congestion in the I-35 corridor bus operations can be enhanced.

5. **Timeline for Pre-project Study and Implementation**

This project is expected to begin in October 2005 and require eighteen months to complete. If the pre-project study determines the value priced tolls are both beneficial and feasible, the project could be implemented when SH 130 opens to traffic in 2007.

6. **Description of Tasks and Estimated Costs**

A) Conduct pre-project data collection as needed to supplement data previously collected for other corridor studies, including total vehicle volume, accident rates, percentage of truck traffic, congestion levels and delay. Data will also be collected on traffic growth over the past five years and the projected traffic growth. Additionally, data will be collected to determine truckers' use of I-35. Data collection efforts will be coordinated with ongoing activities that are being carried out as part of the development of the TTC-35 and data collected as part of the development of SH 130. Data will be reduced and summarized in a final report. *Budget: $ 15,000*

B) Conduct two to three focus groups (or sets of interviews) comprised of truck drivers, independent truck owner/operators and logistics managers for small, medium and large shippers. In the event that assembling a group of truck drivers or owner operators proves to be impossible, interviews of these people will be conducted. These focus groups/interviews will be designed to gain additional understanding of how truck traffic will react to variable toll rates and to the flat toll rate proposed on SH 130. This information will be used to develop and target the survey design in Task C below. Focus groups results will be included in the final report. *Budget: $ 30,000*

C) In coordination with similar efforts carried out for the TTC-35, develop a stated preference survey designed to assess the potential divergence of truck traffic from I-35 to SH 130 under various tolling scenarios including a variable toll, flat rate toll and credit-based value pricing. The survey will also assess the ability of a variable toll and credit-based value pricing to alter truckers' time of travel to the off-peak periods. The survey will be administered to the appropriate agencies and individuals (in the United States and Mexico) as determined in Tasks A and B above. Additional information gathered in the survey will include trip characteristics (including origin, destination, frequency, and time of day) along with trucking firm characteristics (including size and type). The survey will

also examine the potential feasibility of using credits from diesel concessionaires as a means for encouraging facility usage. The survey will also be used to test for differing attitudes between American truckers and Mexican truckers.
Budget: $ 80,000

D) Analyze survey results and data from Tasks A through C and develop diversion estimates for various toll scenarios. Based on the diversion estimates, predict the impact of variable tolls on:
   a. Congestion on I-35 and SH 130
   b. Pollution on I-35 and SH 130
   c. Trucking costs on I-35 and SH 130
   d. Revenue impacts on SH 130
   e. Peak-period travel time savings

Budget: $ 50,000

E) Prepare a final report documenting the findings from Tasks A through D.
Budget: $ 10,000

7. **Evaluation**

The data collected in this project will be used to evaluate the effectiveness of the project if it is subsequently implemented.

8. **Financial Plan**

The financial impact of the project will be assessed following the pre-project study. The implementation of the project will depend on the revenue impact to the SH 130 facility and the ability to meet bond debt requirements. Additional revenue could potentially be generated from lease-back arrangements including concessions from diesel fuel providers along the facility.

9. **Plans for Involving Key Affected Parties**

The Texas Department of Transportation – Austin District will be the lead agency on this pre-project study. Other partner agencies include the Capital Metropolitan Transit Authority, FHWA, and the Capital Area Metropolitan Planning Organization (CAMPO). Private organizations, with particular interest in SH 130 and TTC-35 will also be invited to participate. Although, the trucking industry and its professional group, the American Trucking Association, have recently voiced significant opposition to tolling on existing interstates, the industry has been accepting of toll roads in general under certain circumstances. This particular project will evaluate the feasibility of incentives provided to truckers through reduced tolls by way of credits, guaranteed maximum fuel prices and safer, less congested travel and the industry's acceptance of such incentives. The study team has contacted the American Transportation Research Institute (ATRI), the research group of the American Trucking Association, to solicit input on the study approach. Additionally, the research team proposes to involve local trucking contacts such as the Texas Motor Transportation Association to provide input on the project and to generate local stakeholder support.

10. Public Involvement

The TTC-35 has entailed a significant public involvement/education campaign because of the innovative nature of the concept. To date there have been 117 public meetings. Additional stakeholder concerns and comments for this project will be coordinated with ongoing public outreach efforts for the TTC-35, whose study area encompasses most of the alignment for the SH 130. Coordination with the TTC-35 project will benefit both efforts by detailing possible operating scenarios to the general public as well as stakeholders.

11. **Legal and Administration Requirements**

The Texas Legislature passed SB 370 during the 73rd Legislative Session that gave legal authority for TxDOT, toll authorities, transit agencies, and the private sector to participate in congestion pricing. TxDOT also had the authority, under section 224.154(a) of the Texas Transportation Code, to charge a toll on a facility with FHWA's approval.